KUDRYAVTSEVA, N.P.; KACHURETS, V.I.; NASYBULLINA, S.Kh.

Use of strophanthin in the compound treatment of cardiovascular disorders in toxic diphtheria. Kaz.med.zhur. no.3:42-43 My-Je '62. (MIRA 15:9)

1. Kafedra detskikh infektsiy (zav. - prof. N.P.Kudryavtseva) i difteriynoye otdeleniye 1-y infektsionnoy klinicheskoy bol'nitsy imeni prof. A.F.Agafonova (glavnyy vrach - D.P.Petrov). Kazanskogo meditsinskogo instituta.

(STROPHANTHIN) (DIPHTHERIA)
(CARDIOVASCULAR SYSTEM—DISEASES)

KUDRYAVTSEVA, N.P.; ZAIKONNIKOVA, I.V.; AFONSKAYA, L.S.

Effectiveness of new phosphorus organic substances in the treatment of diphtheria. Kaz. Med. Zhur. no.6:41-44 '62. (MIRA 17:5)

1. Kafedra detskikh infektsiy (zav.-prof. N.P. Kudryavtseva) i kafedra farmakologii (zav.-dotsent T.V. Raspopova) Kazanskogo meditsinskogo instituta.

KUDRYAVTSEVA, N.P., prof.; ZALIZHNAYA, M.S.

Treatment of diphtheria in children with antidiphtheria serum and anatoxin. Kaz. med. zhur. no.6:39-42 N-D '63.

(MIRA 17:10)

1. Kafedra detskikh infektsiy (zav. - prof. N.P. Kudryavtseva) Kazanskogo meditsinskogo instituta.

KACHURETS, V.I.; KUDRYAVTSEVA, N.P.

Incidence of diphtheria in Kazan and the fundamental stages of its eradication. Nauch. trudy Kaz. gos. med. inst. 14:35-36 '64.
(MIRA 18:9)

1. Kafedra detskikh infektsiy (zav. - prof. N.P.Kudryavtseva) Kazanskogo meditsinskogo instituta.

KUDRYAVTSEVA, N.P.

Pathogenesis of diphtheria in vaccinated children. Nauch. trudy Kaz. gos. med. inst. 14:465-467 '64. (MIRA 18:9)

1. Kafedra detskikh infektsiy (zav. - prof. N.P.Kudryavtseva) Kazanskogo meditsinskogo instituta.

AUTHORS: Nikolayeva, T. N., Candidate of Chemical Sciences, Kudryavtseva, N. S. S/064/59/000/08/05/021 B115/B017

TITLE: Adhesiveness of Ftoroplast-3 Coatings on Metals

PERIODICAL: Khimicheskaya promyshlennost', 1959, Nr 8, pp 668-672 (USSR)

ABSTRACT: In connection with the theory of electric adhesion the papers by B. V. Deryagin and A. N. Krotova (Ref 3), A. N. Krotova and Yu. M. Kirillova (Ref 4) are mentioned. According to further papers adhesion depends on the polarity of the material used. The adhesion of the fluoroplast-3 film which is a polymer with low polarity to metals, results not only from the interpolar interaction between the polymer and the primary layer but also from the formation of an electric double layer. In this paper the adhesiveness of fluoroplast as a protective layer on metals is investigated in connection with the various theories mentioned. For the purpose of determining the adhesiveness of fluoroplast-3 films to metals a device of the type of the adhesiometer by A. A. Snedze (Ref 13) was used. The application of the film to the metal is described. The adhesion of the fluoroplast-3 coatings to the metal surfaces may be influenced by various factors the following of which were investigated in this paper: 1) nature and amount of the pigment or of the filler, 2) number of the primary layers containing pigments or fillers, 3) nature of the metal to which the coating was applied, 4) the

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additional heating of the coating, 5) the density of the coating, and 6) the temperature and the duration of storage. All investigations (with the exception of point 3) were made with two types of metals, i.e., steel 12Kh5MA and aluminum AD1-M. The dependence of adhesion on the amount of the produced chromium trioxide (according to TU 3344-52) (pigment for polychlorotrifluoro ethylene fluoroplast-3) is described (Fig 1). In this connection the use of a suspension with 25% CrO_3 was the most suitable. In investigating the dependence of adhesion on the number of primary layers with CrO_3 (Fig 2) the use of four basic layers proved to be the most suitable. On the basis of the above-mentioned data (Table 1), adhesion to aluminum is considerably higher than to steel. Adhesion to aluminum is independent of the type of aluminum which is also the case with corrosion-proof steel, except for the type EZh-2 whose adhesion is low. Adhesion of steel of the type stal'-3 is good. The influence exercised by additional heating on the adhesion of the aluminum AD1-M (Fig 3) and steel 12Kh5MA (Fig 4) was investigated, and the dependence of adhesion on the thickness of the film on aluminum AD1-M (Fig 5) and steel 12Kh5MA (Fig 6) was described. The dependence of adhesion (in g/mm) of fluoroplast-3

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coatings on the duration of storing of the samples in air was investigated for two years at 20, 50, 70 and 100°, and the results obtained are given (Table 2). In conclusion, it may be said that for the purpose of obtaining protective coatings with good adhesion to stal'-3 steel and various types of aluminum (AD1-M, D-16A, AMG-3) the following conditions must be observed: 1) thickness of the coating of 160 - 180 μ; 2) the first four layers of the coating are to be applied by means of a suspension pigmented with 25% CrO_3 (with respect to the dry substance) and 3) the coated material must be heated for 5 - 6 hours at 230°. There are 6 figures, 2 tables, and 18 references, 9 of which are Soviet.

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S/852/62/000/000/005/020
B107/B107

AUTHORS: Nikolayeva, T. N., Kuryatnikova, V. G., Kudryavtseva, N. S.

TITLE: Anticorrosive fluoroplastic-3 and fluoroplastic-3M (3M) coatings

SOURCE: Primeneniye polimerov v antikorrozionnoy tekhnike. Ed. by I. Ya. Klinov and P. G. Udyma. Moscow, Mashgiz, 1962. Vses. sovet nauchno-tekhn. obshchestv. 44 - 47

TEXT: The method of applying fluoroplastic-3 and fluoroplastic-3M has been improved: (1) A single fluoroplastic-3 layer is 15 - 20 μ thick; one coating requires 16 layers. A 2 - 2.5 % addition of No. 12 BTY (No. 12 VTU) and No. EY 158-57 (No. YeU 158-57) liquids enables the number of layers to be reduced to 5 - 7 by reason of the layers being thickened to 40 - 50 μ. For sandblasted steel surfaces it is recommended that the first layer should be applied as a Cr_2O_3 suspension without liquid No. 12. (2) A method was developed for the flame-spraying of fluoroplastic-3. УПН(UPN) devices of the VNIIAvtogen have been used for this purpose. For 1-2 hrs the fluoroplastic powder is dried at 130°C

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and then sieved through a 025 sieve. The object is heated to 250 - 270°C and the flame is so adjusted as to soften the sprayed powder without melting it. The object is then kept at 270°C for one hour. A single layer may have a thickness of 60 - 80 µ. This method has been developed for objects with a minimum diameter of 350 - 400 mm. Such coatings have the same mechanical and chemical properties as others applied by brushing. (3) One difficulty is that every fluoroplast layer has to be melted under thermostatic control at 270°C. In 1959 the Ural'skiy khimicheskiy institut (Ural Institute of Chemistry, UNIKhIM) Sverdlovsk, developed a method of heating smaller objects to the required temperature by induction. Heating to 270 - 280°C takes 180 - 200 seconds; conditions: 25-25-5 v, 300 - 306 a, 2.4 kw. The development was continued in 1960. (4) Fluoroplastic-3M protects against corrosion up to 150°C, fluoroplastic-3, however, only to 80 - 90°C, as crystallization then begins. The following results were obtained with fluoroplastic-3M: Fluoroplastic-3M may be applied as a 3 % suspension in alcohol, after which it is dried in air and heated for 30 to 60 minutes according to size. The layer thickness suited best is 300 - 400 µ. Slow cooling in a furnace is better than quenching in cold water as fluoroplastic-3. Another improvement is reached by 10-hr heating to

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260°C after application of the last layer. (5) The adhesion of fluoroplastic-3M coatings at 100, 140, and 170°C was studied. At 140°C, and especially at 170°C, the coatings assumes a stable structure which remains unchanged for months, even at 100°C. Treatment at 100°C reduces adhesion even after few hours. (6) The chemical resistivity of fluoroplastic-3M coatings was determined: for 10 months at 50°C it is resistant to concentrated hydrochloric, sulfuric, and nitric acids, and for 12 months at 140°C to concentrated sulfuric acid. (7) An addition of manometer liquid and liquid No. 12 (mixture of 0.5 % each) allows an increase in the layer thickness of fluoroplastic-3M to 50 μ. The Shchelkovskiy khimicheskiy zavod (Shchelkovo Chemical Works) and other works have started the industrial production of such coatings. There is 1 table.

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S/191/62/000/007/007/011
B124/B144

AUTHORS: Nikolayeva, T. N., Kudryavtseva, N. S.

TITLE: Corrosionproof coats based on modified polytrifluorochloroethylene (ftoroplast-3M)

PERIODICAL: Plasticheskiye massy, no. 7, 1962, 41-45

TEXT: Modified polytrifluorochloroethylene, ftoroplast-3M (F-3M), by contrast with polytrifluorochloroethylene, ftoroplast-3 (F-3), is characterized by a lower tendency to crystallization and unchanged mechanical properties of its film at 150-170°C. To obtain corrosionproof coats of F-3M the powdery polymer was suspended at 260-275°C; a 30% suspension was applied, by pouring or dipping, to a metal surface degreased by sandblast and dried; drying was performed first in the air, then in a thermostat at 120°C for 20 min; finally the film was homogenized by keeping it at 260°C for 30-60 min. As one suspension gives a film with a maximum thickness of only 15-20 μ, this process must be repeated several times. After melting each layer, the product was cooled in air to 20-25°C. The authors studied the dependence of the adhesion of these films and of

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their mechanical properties on the cooling method; the adhesion was determined by an apparatus of the same type as that developed by A. A. Snedze (Tekhnologiya lakokrasochnykh pokrytiy (Technology of varnish and paint coats), Goskhimizdat, 1951, p. 27). To increase the adhesion, the authors added 25% CrO_3 as referred to the dry substance of the suspension, in four layers. The cooling method does not affect the mechanical properties of the films but maximum adhesion is attained by cooling in the cooling thermostat. The adhesion rises up to 400-450 μ with increasing film thickness, but drops if the film thickness is further increased. Depending on the covering capacity, 20-26 layers of suspension are required to obtain the optimum film thickness. Heating to 260°C after applying the last layer increases the adhesion to the metal. The total time of baking and additional heating of the film to 260°C should be about 10 hrs. The optimum film thickness for aluminum and steel is 300-450 μ. The stability of mechanical properties at 150-170°C proves that no crystallization proceeds in the film at these temperatures. It was found desirable to heat the coat to 170°C for 24 hrs after melting the last layer; this increased the adhesion and reduced the permeability (for HNO_3 at 50°C) to a minimum. Experiments showed that coats of F-3M were

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stable against concentrated sulfuric, nitric, and acetic acids, as well as lyes, at elevated temperatures. With F-3M, a continuous stress is possible at temperatures of up to 150°C, whereas coats of F-3 can be used only up to 80-90°C. There are 3 figures and 7 tables.

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NIKOLAYEVA, T. N.; KUDRYAVTSEVA, N. S.; ZAKHAROVA, L. V.

Rapid method for the production of coatings from the fluoroplast-3M suspension. Plast. massy no. 5:45-47 '64.
(MIRA 17:5)

BORODULINA, F. Z.; KUDRYAVTSEVA, N. V.; TAN TI [T'ang T'i]

Changes in the water economy and photosynthesis of corn of various ages. Nauch. dokl. vys. shkoly; biol. nauki no.3:145-149 '62. (MIRA 15:7)

1. Rekomendovana kafedroy fiziologii rasteniy Moskovskogo gosudarstvennogo universiteta im. M. V. Lomonosova.

(CORN(MAIZE)) (PHOTOSYNTHESIS)
(PLANTS--WATER REQUIREMENT)

AUTHOR: Kudryavtseva, N. V. SOV/139-58-4-1/30

TITLE: On a Generalization of Houston's Method (K obobshcheniyu metoda Khaustona)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, 1958, Nr 4, pp 3-18 (USSR)

ABSTRACT: Houston's method for calculating the normal vibrations of a crystal lattice is extended to include both non-cubic lattices and non-normal modes. The secular equation for the vibration frequencies of a crystal lattice can always be reduced to an equation of the 3N th. order in the square of the frequencies, when N is the number of different atoms in a lattice cell: thus, for a monatomic lattice this reduces to a cubic. In general the problem is to solve the 3N th. order equation to find the frequency as a function of coordinates inside the appropriate Brillouin zone. The solution must be performed numerically, and for enough points to give a frequency distribution. In the present paper the problem is set up in such a way as to lend itself readily to automatic computation. The frequency distribution is obtained by operating repeatedly on the matrix elements (or rather their Fourier transforms)

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for the appropriate propagation vectors of the reciprocal lattice. A diatomic lattice is considered specifically. The author summarises his conclusions thus:

1. The great errors which are obtained when, using the Houston method and which were attributed to this method are really due to the utilisation of the density function which is correct only in the range of monotonous variations of $\omega(\vec{k})$ for regions containing extreme points.
2. For excluding these errors according to the method of Nakamura it is necessary to first study the behaviour of the surfaces of equal frequency in the phase space which leads to a considerable complication of the calculation of the density function.
3. The Houston method which is based solely on the symmetry properties of the lattice allows very promising generalisation of the method to a wider class of functions. The generalised Houston method is applicable to calculation of the thermodynamic magnitudes without intermediate determination of the density functions which simplifies appreciably the problem without changing the accuracy of the results. In some complicated cases application of the

On a Generalization of Houston's Method SOV/139-58-4-1/30

generalised Houston method is the only practically available method of solution.

4. Calculation of the heat capacity of a monatomic plane square lattice carried out by means of three differing methods (accurate Montroll density functions, Houston-Nakamura density functions and the generalised Houston method) shows that the last mentioned method has a satisfactory accuracy and is very much simpler. There are 3 figures and 16 references, 3 of which are Soviet, 13 English.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete imeni V. V. Kuybysheva (Siberian Physico-technical institute at the Tomsk State University imeni V. V. Kuybyshev)

SUBMITTED: February 24, 1958

Card 3/3

KUDRYAVTSEVA, N. V., Cand of Phys-Math Sci -- (diss) "The Theory of the Equation of State of Ionic Crystals of the NaCl Type," Tomsk, 1959, 7 pp (Siberian Physics and Technology Institute of the Tomsk State University im V. V. Kuybyshev)

(KL, 7-60, 106)

24.7100

65725
SOV/139-59-2-24/30

AUTHOR: Kudryavtseva, N.V.

TITLE: On the Equation of State of Ionic Crystals of the NaCl Type. I. Frequencies

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1959, Nr 2, pp 153-159 (USSR)

ABSTRACT: The equations of state of ionic crystals of the NaCl type have so far been only discussed on the Grueisen approximation but the results obtained show the necessity of a more rigorous formulation of the problem, taking into account the vibration spectrum. The solution of this problem is very difficult and various limitations must be introduced. The present paper is limited to the consideration of stresses which do not alter the symmetry of the lattice under consideration. The interaction between the particles is approximated by the Born formula

$$\varphi_{kk'}^{2} = \frac{e_k e}{r_{kk'}^{2}} + \frac{\beta_{kk'}}{(r_{kk'}^{2})^{n}}$$

where $k,k' = 1,2$; $e_k, e_{k'}$ are the ionic charges; $\beta_{kk'}$ the parameters of non-Coulomb interaction and

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On the Equation of State of Ionic Crystals of the NaCl Type. I. Frequencies

n is the repulsive force index. The calculation of integrals of thermodynamic quantities is carried out using the generalized method given by Houston in Ref 2. Other approximations used are the nearest neighbour approximation and the unpolarized point-ion approximation. The admissibility of these approximations has been discussed in Ref 3 and 4 and is to some extent established. Under these approximations, frequency spectra have been obtained for ionic cubic crystals of the NaCl type as functions of the wave number $\varkappa_x$ in the Houston (Ref 1) A,B,C directions, and of the deformation parameter α. The frequencies obtained are plotted in Fig 1 and 2 and are, in general, similar to those given by Kellermann (Ref 5) and Jona (Ref 7) (which are shown by the dotted curves in Fig 1 and 2 respectively. There are 2 figures, 2 tables and 8 references, 3 of which are Soviet and 5 English.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete imeni V.V.Kuybysheva (Siberian Physico-

65725

On the Equation of State of Ionic Crystals of the NaCl Type. SOV/139-59-2-24/30
I. Frequencies

Technical Institute of the Tomsk State University imeni V.V.Kuybyshev)

SUBMITTED: October 24, 1958

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24.7100

66602

AUTHOR: Kudryavtseva, N.V. SOV/139-59-3-17/29

TITLE: On the Theory of the Equation of State of NaCl-type Ionic Crystals. II Equation of State

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1959, Nr 3, pp 112-118 (USSR)

ABSTRACT: The present paper describes a deduction of the simplest equation of state for NaCl-type ionic cubic lattices with the complete spectrum of normal vibration frequencies allowed for by Houston method (Ref 4). Interaction between lattice ions is approximated by Born's formula. Non-Coulomb interaction is allowed for in the nearest neighbour approximation. Ions are assumed to be of point size (no polarization). To construct the equation of state for a crystal within the framework of Born's theory of solids (Ref 1), it is necessary to know the free energy of the lattice as a function of temperature and deformation parameters. The free energy of a crystal can be given in terms of normal vibration frequencies (Ref 2)

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On the Theory of the Equation of State of NaCl-type Ionic Crystals.
II Equation of State

$$F = U + \kappa T \rho^{-1} \frac{1}{p} \sum_{i=1}^{3p} \int_D \left[\ln \left(1 - e^{-\frac{h\omega_i(\vec{\chi})}{kT}} \right) + \frac{1}{2} \frac{h\omega_i(\vec{\chi})}{kT} \right] \cdot (d\vec{\chi}), \quad \text{Eq(1)}$$

where $\rho = (1/pN) \int_D (d\vec{\chi})$, integration is carried out in the region D which is the positive octant of the first Brillouin zone in the wave-number space, N is the number of unit cells in a crystal, U is potential energy of the crystal, T is the absolute temperature, $\omega_i(\vec{\chi})$ are the frequencies of normal vibrations of the crystal. From the expression for free energy specific heat at constant volume, $c_V = T(\partial^2 F/\partial T^2)$, the simplest form of the equation of state, $-p = \partial F/\partial V$ (where p is the pressure and V is the volume of the crystal) and other thermodynamic quantities can be deduced. Using Eq (1) the simplest form of the equation of state is found to be

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$$-p = \frac{1}{v_o a^3} \left\{ \frac{e^2}{a_o} f_V(\alpha, n, \beta) + kT_o f_t(\alpha, n, \mu, t) + kT_o f_o(\alpha, n, \mu) \right\}, \quad \text{Eq (2)}$$

On the Theory of the Equation of State of NaCl-type Ionic Crystals. II Equation of State

where $KT_o = h\omega_o$, $t = T/T_o$, $\beta = \left[(\beta_{11} + \beta_{22})/2\beta_{12}\right] - 1$, and the quantities f_v, f_t and f_o are given by Eq (3). The following symbols are used in Eq (3): $D_i = v_o a^3(\partial s_i^2/\partial v)$, $v = v_o a^3$, $C_{n\beta} = 1$ in the nearest-neighbour approximation and $C_{n\beta} = (\beta S_n^{of} + S_n^{os})/6$ when the non-Coulomb interaction is allowed for completely, S_n^{of} and S_n^{os} are Born's sums for face-centred and simple cubic lattices (Ref 5); the values of frequencies s_i are taken from tables given in the author's dissertation, and integrals in the region D are calculated according to Houston's method (Ref 4). The comparative simplicity of calculation (linear instead of volume integration) made it possible to carry out computation for five values of the deformation parameter a (1.00, 1.025, 1.05, 1.07, 1.08). The equation of state was constructed for two values of the parameter μ ($\mu = 1$ for KCl and $\mu = 1.5418$ for NaCl) and $n = 9$. Fig 1a shows the isotherms (continuous curves) of the equation of state (pressure v. deformation parameter a)

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of the NaCl lattice at four temperatures, T = 0, 143, 286, 857 °K. This figure shows that the isotherms have maxima which are displaced towards the axis p = 0 and towards lower deformation on increase of temperature. Similar curves were obtained for KCl. Fig 2a gives the isochores (continuous curves) of the equation of state (pressure v. temperature) for the NaCl lattice. These isochores are in the form of hyperbolae with vertices on the axis T = 0 and the slope of their asymptotes (i.e. the angle they make with the axis p = 0) increases with increase of the deformation parameter α. The isochores of KCl have the same shapes. Fig 3a shows the isobars (continuous curves) of the equation of state (deformation parameter v. temperature) of the NaCl lattice. They have a practically horizontal portion in the region of small values of temperature and vertices (where $dT/d\alpha = 0$) at high temperatures. The isobars of KCl are similar to NaCl isobars. If the isotherm maxima ($dp/dv = 0$) and the vertices of isobars ($dT/d\alpha = 0$) are regarded as the points at which lattice "decomposes" under given thermodynamical

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conditions of volume, pressure, temperature, then the temperature of the isotherm which touches the $p = 0$ axis at its maximum, and the isobar vertex corresponding to $p = 0$, may be defined as the "melting point" of the lattice. As expected, the "melting points" of NaCl and KCl rise with increase of external pressure. Comparison of the results obtained by the author with those which follow from the equation of state in the Gruneisen approximation (shown as dashed curves in Figs 1-3) showed good agreement at low temperatures, deformations and pressures. This is because in the ionic crystals considered here the potential energy plays a predominant role at low temperatures, deformations and pressures, and the choice of the vibration model does not affect the results. It follows that allowance for vibrations in the equation of state of ionic crystals is important only at above room temperature. Choice of the vibration model becomes more important in the case of a deformed lattice because of the greater contribution of the vibrational curves.

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SOV/139-59-3-17/29

On the Theory of the Equation of State of NaCl-type Ionic Crystals. II Equation of State

There are 4 figures, 1 table and 8 references, of which 4 are Soviet, 1 English, 2 German and 1 translation from German to Russian.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete imeni V.V. Kuybysheva (Siberian Physico-technical Institute, Tomsk State University imeni V.V. Kuybyshev)

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SUBMITTED: November 1, 1958

4

AUTHORS: Kudryavtseva, N.V. and Terpugova, ...F. SOV/51-7-4-31/32

TITLE: On the Paper by L.A. Borovinskiy

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, Nr 4, pp 578-579 (USSR)

ABSTRACT: L.... Borovinskiy, in his paper "On the Conditions of Joining Functions in the One-Dimensional Metallic Model of a Molecule", published in "Optika i spektroskopiya", Vol 4, p 526 (1958), doubts the logical consistency of the metallic-model method in the case of a molecule represented by a ring of radius R with a branch of length ℓ. Borovinskiy shows that in two limiting cases when $\ell \to 0$ and $R \to 0$ (or $\ell \to \infty$) the solutions do not go over into a free ring without a branch ($\ell \to 0$) or a potential well with two infinite walls ($R \to 0$ or $\ell \to \infty$). The present authors (Kudryavtseva and Terpugova) agree that Borovinskiy's mathematical conclusions are correct but they point out that the results obtained are due to the special conditions at the end of the branch (there is an infinite wall there). When $\ell \to 0$, the model reduces to a ring with a special point on it and when $R \to 0$ ($\ell \to \infty$) a potential well with one infinite wall is obtained.

SUBMITTED: February 18, 1959

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37719
S/139/62/000/002/015/028
E073/E435

24.6111

AUTHORS: Chaldyshev, V.A., Kudryavtseva, N.V.

TITLE: On the question of investigating the energy spectrum of electrons in crystals. II

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, no.2, 1962, 104-107

TEXT: The authors propose a new method for determining the relationships between the parameters of the dispersion law, dependent on the spatial symmetry of the crystal. As shown in a previous paper (Izv. VUZ, Fizika, no.6, 1961, 48) the investigation of the character of the energy spectrum of electrons in crystals around any point $\underline{k}_0$ of the Brillouin zone reduces to the analysis of the equation

$$\det \left[a_{\mu\nu}(\underline{k}) - \delta_{\mu\nu}\varepsilon(\underline{k}) \right] = 0 \qquad (1)$$

The functions $a_{\mu\nu}(\underline{k})$ must satisfy

$$a_{\mu\nu}(\underline{k}) = A_{\mu\mu'}(g)a_{\mu'\nu'}(A^{-1}(g)\underline{k})A^{-1}_{\nu'\nu}(g) \qquad (2)$$

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which is a result of the spatial symmetry of the crystal, and

$$a_{\mu\nu}(\underline{k}) = P^{-1}_{\nu\nu'} a_{\nu'\mu'}(T_k^{-1}\underline{k}) P_{\mu'\mu} \qquad (3)$$

The use of Eq.(2) and (3) assumes that $A_{\mu\nu}(g)$ and $P_{\nu\nu'}$ as well as the action of the operators $A(g)$ and T_k on the wave vector are known. The problem of determining the matrices $A_{\mu\nu}(g)$ of the irreducible representations of the group G_e for different points $\underline{k}_o$ of the Brillouin zone reduces to the calculation of irreducible weighted representations for weights of certain types, corresponding to a certain point group R.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete imeni V.V.Kuybysheva (Siberian Physicotechnical Institute of Tomsk State University imeni V.V.Kuybyshev)

SUBMITTED: April 20, 1961

CHALDYSHEV, V.A.; KUDRYAVTSEVA, N.V.

Problem of investigating the energy spectrum of electrons in a crystal. Part 2. Izv.vys.ucheb.zav.;fiz. 2:104-107 '62. (MIRA 15:7)

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosudarstvennom universitete imeni Kuybysheva.
(Crystals) (Electrons)

S/139/62/000/003/016/021
E039/E460

AUTHORS: Kudryavtseva, N.V., Chaldyshev, V.A.

TITLE: On the investigation of the energy spectrum of electrons in a crystal. III. Certain properties of weighted representations

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Fizika, no.3, 1962, 133-139

TEXT: Earlier part - Izv. VUZ. Fizika, no.2, 1962, 104. Certain properties of the weighted representations which are necessary for the investigation of the energy spectrum of electrons in a crystal lattice are established. A series of definitions and theorems are established by group theory methods. The concept of a weighted representation is introduced. R is a symmetry point group with elements r. If to each element r of R there corresponds a linear operator T(r) then,

$$T(r_i)T(r_j) = \psi(r_i,r_j)T(r_ir_j)$$

where $\psi(r_i,r_j)$ is a scalar function satisfying the functional equation $\psi(r_1,r_2)\psi(r_1r_2,r_3) = \psi(r_1,r_2r_3)\psi(r_2,r_3)$,

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then this correspondence is called the weighted representation of the group R and the function $\psi(r_i,r_j)$ the weight. If ψ is unity, then the system reduces to the normal representation. A series of theorems of the properties of ψ are developed covering reducible and irreducible representations. The properties of tables of the weights are discussed.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete imeni V.V.Kuybysheva
(Siberian Physicotechnical Institute at Tomsk State University imeni V.V.Kuybyshev)

SUBMITTED: April 20, 1961

S/139/62/000/004/008/018
E132/E435

AUTHORS: Kudryavtseva, N.V., Chaldyshev, V.A.

TITLE: On the question of the investigation of the energy spectrum of electrons in a crystal. IV

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Fizika, no.4, 1962, 98-106.

TEXT: Theorems have already been developed (Izv.VUZ Fizika, no.2, 1962) related to weighted distributions in the 32 crystallographic point groups. Those crystal classes for which weighting only of the first order can be realized are distinguished. Tables of second order weighting are developed and shown to be largely equivalent. The elements of the group R (the crystal class) can be divided into subgroups, each separate cyclic groups, the elements of which commute among themselves. One element may belong to several cycles. These are tabulated. It has already been shown that for tables of weightings of the first order a one-dimensional weighted representation exists. One-dimensional representations no longer exist for tables of the weightings of the second order when these lead to antisymmetric weightings.
Card 1/2

On the question of the investigation .. S/139/62/000/004/008/018
E132/E435

The theory developed appears to be a mathematical analogy of the geometrical theory of black and white and coloured groups developed by A.V.Shubnikov and N.V.Belov by more intuitive methods. There are 5 tables.

ASSOCIATION: Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosuniversitete imeni V.V.Kuybysheva (Siberian Physicotechnical Institute at Tomsk University imeni V.V.Kuybyshev)

SUBMITTED: April 20, 1961

Card 2/2

S/181/62/004/012/018/052
B104/B102

AUTHORS: Karavayev, G. F., Kudryavtseva, N. V., and Chaldyshev, V. A.

TITLE: The structure of the electron energy spectrum in Th_3P_4-type crystals

PERIODICAL: Fizika tverdogo tela, v. 4, no. 12, 1962, 3471-3481

TEXT: The covariant representation of the symmetry properties of Th_3P_4-type crystals according to E. Wigner (Group Theory and its Application to the Quantum Mechanics of Atomic Spectra, Academy Press, 1959) is applied to studying the effect that spatial symmetry and isotropy of Z_3Se_4-type compounds exerts on the electron energy spectrum. For the symmetry group T_d^6 of the lattice type investigated and with type Γ_c^v of the Brillouin zone, the dispersion laws near the symmetry points of the Brillouin zone are derived in parametric form on the basis of solutions to the algebraic equation $a_{\mu\nu}(\vec{k})c_\nu = \varepsilon(\vec{k})c_\mu$. The method used was suggested by V. A.

Card 1/2

The structure of the electron ... S/181/62/004/012/018/052
B104/B102

Chaldyshev (Izv. vuzov SSSR, Fizika, no. 6, 48, 1961; no. 6, 93, 1960). The symmetry coefficients $a_{\mu\nu}$ determine the character of the dispersion law in the neighborhood of the symmetry points. The matrices $\mathcal{H} = \| a_{\mu\nu} \|$ are calculated in quadratic approximation with respect to $\vec{k}$, using the matrices of the irreducible representations $D(g)$ of the unitary and antiunitary operations g. The representations of the matrices are given. There are 1 figure and 13 tables.

ASSOCIATION: Tomskiy gos. universitet im. V. V. Kuybysheva (Tomsk State University imeni V. V. Kuybyshev)

SUBMITTED: July 6, 1962

Card 2/2

KUDRYAVTSEVA, N.V.

Use of Houston's generalized method in solving thermodynamic problems in the case of NaCl type ionic crystals. Izv. vys. ucheb. zav.; fiz. no.5:46-48 '62. (MIRA 15:12)

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosudarstvennom universitete imeni Kuybysheva.
(Thermodynamics) (Ionic crystals)

KUDRYAVTSEVA, N. V.; CHALDYSHEV, V. A.

Electron energy spectrum in crystals. Part 3. Some properties of load representations. Izv. vys. uch. zav.; fiz. 3:133-139 '62. (MIRA 15:10)

1. Sibirskiy fiziko-tekhnicheskiy institut pri Tomskom gosudarstvennom universitete imeni V. V. Kuybysheva.

(Crystallography, Mathematical)

L 51402-65 EWT(l)/EPA(w)-2/EEC(t)/T/EEC(b)-2/EWA(m)-2 Pi-4/Pz-6 IJP(c) GG/AT

ACCESSION NR: AP5010702 UR/0181/65/007/004/0998/1007

AUTHOR: Kudryavtseva, N. V.

TITLE: Possible structure of energy spectrum of electrons in crystals with allowance for the time reversal operation

SOURCE: Fizika tverdogo tela, v. 7, no. 4, 1965, 998-1007

TOPIC TAGS: group theory, energy spectrum, electron spectrum, time reversal

ABSTRACT: The theory of co-representations, developed by Wigner and generalized to the case of other than unit loads by the author (with G. F. Karavayev and V. A. Chaldyshev, FTT v. 5, 3471, 1962; Izv. VUZ SSSR, Fizika v. 2, 46, 1963) is used to calculate the possible structural variants of the energy spectra of electrons in crystals. Tables are present which make it possible to determine the possible multiplicity of degeneracy of the energy levels at any point of the Brillouin zone of any crystal, and a step by step procedure for using the tables is presented. An illustrative example is given. The data obtained on the possible structure of the energy spectrum for carriers in crystals constitute a generalization of the results of Kovalev and Lyubarskiy (FTT v. 2, 2557, 1960; ZhTF v. 28, 1158, 1958)

Card 1/2

L 51402-65

ACCESSION NR: AP5010702

to include the case when account is teken of the time reversal operation. Orig. art. has: 5 formulas and 21 tables.

ASSOCIATION: Tomskiy gosudarstvennyy universitet (Tomsk State University)

SUBMITTED: 17Aug64 ENCL: 00 SUB CODE: SS, GP

NR REF SOV: 010 OTHER: 003

Card 2/2

KUDRYAVTSEVA, N.V.; CHALDYSHEV, V.A.

Studying of the electron energy spectrum in crystals. Part 6. Izv. vys. ucheb. zav.; fiz. 8 no.2:57-64 '65. (MIRA 18:7)

1. Sibirskiy fiziko-tekhnicheskiy institut imeni Kuznetsova.

KUDRYAVTSEVA, N.V.; CHALDYSHEV, V.A.

Studying the energy spectrum of electrons in crystals. Part 7. Izv. vys. ucheb. zav.; fiz. 8 no.3:105-111 '65. (MIRA 18:9)

1. Sibirskiy fiziko-tekhnicheskiy institut imeni V.D.Kuznetsova.

L 09237-67 EWT(1) IJP(c) GG/AT
ACC NR: AP7002785 SOURCE CODE: UR/0139/66/000/004/0108/0109

AUTHOR: Kudryavtseva, N. V.; Chaldyshev, V. A. 31

ORG: Siberian Physicotechnical Institut im. V. D. Kuznetsov (Sibirskiy fiziko-tekhnicheskiy institut)

TITLE: Investigation of the energy spectra of electrons [2] in a crystal. [2] IX. Characteristics of loaded corepresentations of point groups D2h, D4h, D6h

SOURCE: IVUZ. Fizika, no. 4, 1966, 108-109

TOPIC TAGS: electron spectrum, crystallography

ABSTRACT: Characteristics are given for irreducible nonequivalent loaded corepresentations of all possible types of coequivalent loads for the groups D2h, D4h, and D6h, which can have seven types of equivalent loads of the second order. Results are given in an extensive table, which is explained in detail. Orig. art. has: 1 table. [JPRS: 39,040]

SUB CODE: 20 / SUBM DATE: 23Mar65 / ORIG REF: 007

Card 1/1 mle

KUDRYAVTSEVA, O.

The miner's home should be comfortable and beautiful. Mast. ugl. 5 no.8:13 Ag '56. (MLRA 9:11)

1. Deputat Verkhovnogo Soveta Kazakhskoy SSR.
(Karaganda Basin--Coal miners)

VENEDIKTOV, M.V., red.; PECHUK, V.I., red.; NECHAYEV, G.K., kand. tekhn. nauk, red.; RUDNYY, N.M., red.; RUDNAYA, A.I., kand. tekhn. nauk, red.; KUDRYAVTSEVA, R.G., otv. za vyp.; PAVLENKO, V.N., red.; BUREYEV, A.L., tekhn. red.

[Industrial control, equipment and the means of automatic control] Pribory promyshlennogo kontrolia i sredstva avtomatiki; doklady i soobshcheniia. Kiev, Gos.izd-vo tekhn. lit-ry USSR, 1963. 370 p. (MIRA 16:12)

1. Nauchno-tekhnicheskaya konferentsiya po priboram promyshlennogo kontrolya i sredstvam avtomatiki. 2. Institut avtomatiki Gosplana Ukr.SSR (for Nechayev).
(Automatic control)

ACC NR: AP7007168 SOURCE CODE: UR/0070/67/012/001/0155/0157

AUTHOR: Pavlov, P. V.; Tetel'baum, D. I.; Zorin, Ye. I.; Kudryavtseva, R. V.

ORG: Gor'kiy Physicotechnical Research Institute (Gor'kovskiy issledovatel'skiy fiziko-tekhnicheskiy institut)

TITLE: The amorphism in polycrystalline germanium films resulting from irradiation with argon ions

SOURCE: Kristallografiya, v. 12, no. 1, 1967, 155-157

TOPIC TAGS: amorphous polymer, semiconducting film, polycrystalline film, germanium semiconductor, thin film semiconductor, irradiation effect, argon, ion

ABSTRACT: An investigation was made of the transition of crystalline germanium into the amorphous state as the result of irradiation. The experiment was performed with thin polycrystalline germanium films. The films were obtained by the vacuum coating of an NaCl backing heated to 400°C. The film thickness varied from 200 to 500 A, which meant that it was smaller than the mean free path of the ions. Bombardment with [illegible] kev argon ions was performed in an accelerator with a magnetic analyzer. The density of the ion current was 2 to 4 μamp/cm^2. The irradiation doses were 1, 10, 100, 1000, and 5000 μcurie/cm^2. The vacuum in the

Card 1/2 UDC: 548.74

vicinity of the target was 2×10^{-5} mm Hg. During bombardment, the specimens were heated to 90°C in order to reduce organic vapors. At a does of 1 μcurie/cm^2 no changes were observed in the specimens. However at doses of 10 μcurie/cm^2 and larger, the electronograms clearly indicated the transformation of the germanium into the amorphous state: the sharp lines disappeared and were replaced by two or three diffusion rings. The location of the intensity maxima did not coincide with the location of the interference rings of the crystalline germanium, except for the first maximum, which was located at the position of the (111) line. This showed that the structure obtained was not microcrystalline, but amorphous. Two basic mechanisms of amorphism are proposed. First, a gradual accumulation of Frenkel defects during irradiation can lead to the dispacement of atoms to new positions and, consequently, to the disruption of proper order. The second mechanism consists in the generation of regions of local fusion (thermal peaks) inside the germanium by means of retarded ions. These peaks harden in a short time (10^{-11} — 10^{-12} sec). Crystallization cannot occur in such a short time. As a result, a liquid structure or some intermediate state (partial crystallization) appears. The first mechanism is considered more probable. Orig. art. has: 1 table.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 011 [WA-95] [JA]

ACC NR: AP6035830 (A,N) SOURCE CODE: UR/0413/66/000/020/0036/0037

INVENTOR: Blagoveshchenskiy, V. S.; Kudryavtseva, S. N.

ORG: none

TITLE: Preparation of trialkyl tetrathiophosphates. Class 12, No. 187017 [announced by Chemistry Department, Moscow State University im. M. V. Lomonosov (Khimicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 20, 1966, 36-37

TOPIC TAGS: ~~trialkyl~~ ~~tetrathio~~phosphate, phosphorus ~~penta~~sulfide, ~~tetraalkoxy~~siloxane, alkylation

ABSTRACT: To widen the raw material base, in the proposed method for the preparation of trialkyl tetrathiophosphates by alkylation of phosphorus pentasulfide, tetraalkoxysiloxanes are used as the alkylation agents.

[WA-50; CBE No. 14]
[PS]

SUB CODE: 07/ SUBM DATE: 10Jan66

Card 1/1 UDC:547.214'122'118.07

KUDRYAVTSEVA, T.; SYROV, A.

D.I.Mendeleev and photography. Sov.foto 19 no.11:63-64 N '59.
(MIRA 13:4)

(Mendeleev, Dmitrii Ivanovich, 1834-1907)
(Photography)

Kudryavtseva, T.A.

USSR/Organic Chemistry - Synthetic Organic Chemistry E-2

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 4295

Author : Rustamov, Kh.R., Kudryavtseva,T.A.
Inst : Central-Asian Polytechnic Institute
Title : Alkylation of Benzene with Alcohols

Orig Pub : Tr. Sredneaz. politekhn. in-ta, Tashkent, Gosizdat, UzSSR, 1955, 306-310

Abstract : Study of the kinetics of alkylation (AL) of C_6H_6 (I) with ethyl (II), isopropyl (III) and n-butyl (IV) alcohol, in a flow unit, in the presence of H_3PO_4 on a porous carrier, at atmospheric pressure. AL of I with alcohols takes place at considerably slowed rate than with olefins. I is not alkylated by II and ethylene; AL of I with III at 130° and with 91% H_3PO_4 takes place to 0.25%; at 170°, with 72, 87 and 96.2% H_3PO_4 and contact time of 17-28 seconds, to the extent of 4-6%. AL of I with propylene at 170° and with a contact time of

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KUDRYAVTSEVA, T.A.

USSR/Chemistry - Physical chemistry

Card 1/1 Pub. 147 - 3/22

Authors : Rustamov, Kh. R.; Kudryavtseva, T. A.; and Chirkov, N. M.

Title : Alkylation of benzene with olefines. Part 1

Periodical : Zhur. fiz. khim. 29/11, 1945-1957, Nov 1955

Abstract : A study of the kinetics of benzene alkylation with propylene showed that iso- and r-diisopropylbenzene are the basic products obtained from this alkylation reaction. The reaction kinetics was studied at four different temperatures and it was established that the effective activation energy is close to zero at a constant acid concentration. The percentage of the conversion of the basic reagents showed no effect on the ratio of the reaction products; formation of iso- and diisopropylbenzene was parallel. The effect of acid concentration and temperature on the yield of reaction products is discussed. Nine references: 5 USSR, 2 USA and 2 Eng. (1945-1952). Tables; graphs; drawing.

Institution : Central Asiatic Polytechnic Institute

Submitted : May 4, 1955

5(4), 5(3)
AUTHORS: Kudryavtseva, T. A., Chirkov, N. M. SOV/76-32-10-2/39

TITLE: The Kinetics of the Reaction of the Chlorine Exchange in Isomeric β-Chlorocrotonic Acids I (Kinetika reaktsii obmena khlora v izomernykh β-khlorkrotonovykh kislotakh I)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 10, pp 2236-2241 (USSR)

ABSTRACT: The exchange mechanism of a halogen atom bound to a carbon atom (with a multiple bond) has not been investigated in detail as yet. The problem of the influence of the configuration of unsaturated compounds on the movability of the halides seems to be especially interesting. The interaction of carbonyl groups with the chlorine atom leads to a coupling of two single bonds by way of a double bond, called δ-δ-coupling by A. N. Nesmeyanov (Ref 3). Nesmeyanov assumed that for this coupling a parallel direction of the bonds to be coupled was essential. The structural formula of the trans-β-chlorocrotonic acid and that of the cis-isomers show that the bonds CO-C and C-Cl are parallel in the first case, and that they are at an angle to each other in the isomer. From this it might be concluded that

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the mobility of the chlorine atom in the trans-isomer has to be greater than that of the cis-isomer. As this can only be found out by the kinetic method, the latter was also employed in this work. The measurements of the reaction kinetics were carried out in water-alkaline solutions of definite concentrations and at different temperatures. From the kinetic curves obtained it may be seen that the trans-isomer reacts much more rapidly than the cis-isomer. The values of the reaction constants (trans-isomer $5,48.10^{10}$, and cis-isomer $5,48.10^{9}$) show that the trans-β-chlorocrotonic acid reacts at any temperature ten times more rapidly than the cis-isomer. The values of the activation energy are the same for either of the isomers ($21,3\pm0,2$ kcal/mol). The difference in the reaction velocity is explained by the influence of electric steric factors. After the present paper had been completed information was received (Ref 6) on investigations of the chlorine exchange with assumptions in contradiction to the data given here. Those assumptions are counter-proved with reference to the value of the activation energy that remains the same. There are 4 figures, 3 tables, and 6 references, 2 of which are Soviet.

The Kinetics of the Reaction of the Chlorine Exchange in Isomeric β-Chloro-crotonic Acids I

SOV/76-32-10-2/39

ASSOCIATION: AN SSSR, Institut khimicheskoy fiziki, Moskva (Moscow, Institute of Chemical Physics, AS USSR)

SUBMITTED: July 11, 1956

Card 3/3

SOV/76-33-2-3/45

5(4)
AUTHORS: Kudryavtseva, T. A., Chirkov, N. M.

TITLE: Reaction Kinetics of Chlorine Exchange in Isomeric β-Chlorocrotonic Acids (Kinetika reaktsii obmena khlora v izomernykh β-khlorkrotonovykh kislotakh). II. Reaction of the Chlorine Exchange With Lye in Alcohol Solutions (II. Reaktsiya obmena khlora so shcheloch'yu v spirtovykh rastvorakh)

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 2, pp 255 - 261 (USSR)

ABSTRACT: In a previous paper it was found (Ref 1) that the exchange of the chlorine atom in cis and trans-β-chlorocrotonic acids with the hydroxyl ion in aqueous medium occurs at different rates, and that this is explainable not in terms of energy factors but in terms of steric factors. Analogous observations were made by Jones and Vernon (Dzhons)(Ref 2). These observations were tested in the work reported here using 50%, 75%, and pure methanol and ethanol. In the pure alcohols β-ethoxy and β-methoxy crotonic acids were obtained, since the chlorine atom is replaced by the alkoxyl ion instead of by the hydroxyl ion. The experiment involved

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adding alcohol to weighed portions of the crotonic acid isomers in a thermostat, warming, adding 20% sodium hydroxide, and then determining by the Volhard (Vol'gard) method the chloride ion in samples removed at definite intervals. The kinetic curves for the reaction in 75% ethanol (Fig 1) show that the trans isomer reacts more quickly than the cis isomer, and that the reaction is irreversible and bimolecular. The rate constants, calculated from the equation for irreversible bimolecular reactions (Tables 1,2), allow the activation energy to be determined; for the cis isomer this was found to be 20.3 and for the trans isomer 20.8 kcal/mol. For the 50% ethanol an average value (for both isomers) of 21.4±0.5 kcal/mol was found. In the 50% and 75% methanol only the cis isomer was investigated; activation energies of 22.8 kcal/mol and 21.5 kcal/mol were found. The difference in reaction rates was here also attributed to steric factors, since a difference in the pre-exponents appears (especially in diluted alcohol solutions)

while the activation energies for both isomers are almost equal. A maximum difference of 12.5 times was observed between the rates of reaction, although this decreased to a factor of 1.5 with an increase in the alcohol concentration. There are 5 figures, 6 tables, and 3 references, 1 of which is Soviet.

ASSOCIATION: Akademiya nauk SSSR, Institut khimicheskoy fiziki, Moskva (Academy of Sciences, USSR, Institute of Chemical Physics, Moscow)

SUBMITTED: March 15, 1957

5 (2)

AUTHORS: Kudryavtseva, T. A., Chirkov, N. M., Kochetkov, N. K.

SOV/20-127-1-28/65

TITLE: The Reaction Kinetics of a Nucleophilic Substitution of Chlorine in Phenyl-β-chlorovinyl-ketone (Kinetika reaktsii nukleofil'nogo zameshcheniya khlora v fenil-β-khlorvinilketone)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 1, pp 108 - 110 (USSR)

ABSTRACT: The published data on the reaction at the unsaturated carbon atom mentioned in the title is very rare. The halogen atom at the carbon with a double bond in compounds of the chlorovinyl-ketone type is known to be very inert in substitution reactions. It gets, however, unstable and enters easily into the afore-mentioned reaction if the other side of the double bond is an electrophilic group (CO, COOH, COOR etc.) (Refs 1,2). Since the hitherto existing data were merely qualitative, no comparison was possible of the mobility of the halogen with respect to the type of the activating groups (CO, COOH, COOR etc.) as well as with respect to the type of the attacking nucleophilic reagen The kinetic data necessary for this purpose was obtained in t laboratory of the institute mentioned in the Association (Re

Card 1/3

the topic mentioned in the title was investigated as its continuation. The above substance is known to be a trans-isomer (Ref 4). Its solution (in absolute ether) was mixed with a solution of sodium ethylate (in excess). Methyl alcohol served as a thermostat. Figure 1 shows the resultant kinetic curves. The velocity constants calculated from the latter (by the formula for irreversible bimolecular reaction) were practically constant. Table 1 shows that the doubling of the initial concentration of sodium ethylate changed the reaction velocity as was expected, the values of the above-mentioned constants remained nevertheless the same. The pre-exponential member K_o = $= 4 \cdot 10^7$ was too low by three orders of magnitude compared with a normal one for a bimolecular reaction (Table 2). This indicates that the reaction is in this case in fact bimolecular (as well as in the case of β-chloro-crotonic acids, Ref 3). Thus, the type of the activating groups does not influence the exchange reaction order of halogen substitution in compounds of the type of β-substituted halogen vinyls. The type of this group influences, however, considerably the exchange rate of

The Reaction Kinetics of a Nucleophilic Substitution of Chlorine in Phenyl-β-chlorovinyl-ketone SOV/20-127-1-28/65

the halogen atom, i.e. the activation energy (see Scheme p 108). There are 2 figures, 2 tables, and 5 references, 4 of which are Soviet.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences, USSR)

PRESENTED: March 9, 1959, by V. N. Kondrat'yev, Academician

SUBMITTED: March 3, 1959

Card 3/3

5.4300

68853

AUTHORS: Kudryavtseva, T. A., Chirkov, N. M.

S/076/60/034/02/017/044
B010/B017

TITLE: Reaction Kinetics of Chlorine Exchange in Isomeric β-Chlorocrotonic Acids. III. Reaction of Chlorine Exchange With Alkoxy Groups

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol 34, Nr 2, pp 375-379 (USSR)

ABSTRACT: For the purpose of solving the problem of the mobility of chlorine in unsaturated compounds, β-chlorocrotonic acids were chosen since the geometric isomers of the latter can be easily produced in a pure form. The reaction rate of the chlorine substitution in sodium salts of the cis- and trans-β-chlorocrotonic acids with alkoxy ions was investigated under the action of sodium ethylate, -phenolate, and -benzylate in absolute ethanol. The samples were taken at certain intervals, and chlorine was determined according to Volhard. The reaction rate was determined at various initial concentrations of the reagents and various temperatures, and the kinetic curves were drawn. The dependence of the reaction rate on temperature is given (Tables 1-3), as well as the values of the coefficients of the exponential function and the activation energies of the individual pairs of isomers (Table 4). The reactions investigated are irreversible and bimolecular. As had been expected the trans-isomers reacted more rapidly than the cis-isomers.

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68853

Reaction Kinetics of Chlorine Exchange in Isomeric β-Chlorocrotonic Acids. III. Reaction of Chlorine Exchange With Alkoxy Groups

S/076/60/034/02/017/044
B010/B017

The activation energy for each pair of isomers is about 23 kcal/mol. The difference in the reaction rate of the isomers is expressed by the coefficient of the exponential function, i.e. it is explained by steric obstacles. With respect to their activity, the reagents investigated can be set up in the following order according to their nucleophilic properties: benzylate, ethylate, phenolate. The stability of the compounds newly formed in the substitution reaction does not influence the activation energy, increases, however, the probability of formation of an intermediate complex. There are 2 figures, 4 tables, and 6 references, 2 of which are Soviet.

ASSOCIATION: Akademiya nauk SSSR Institut khimicheskoy fiziki (Academy of Sciences of the USSR, Institute of Chemical Physics)

SUBMITTED: May 9, 1958

Card 2/2

KUDRYAVTSEVA, T.A.; CHIRKOV, N.M. (Moscow)

Kinetics of chlorine exchange in isomeric β-chlorocrotonic acids. Part 4: Exchange of chlorine with sodium benzilate in esters of cis- β-chlorocrotonic acid. Zhur.fiz.khim. 34 no.6:1307-1311 Je '60. (MIRA 13:7)

1. Akademiya nauk SSSR, Institut khimicheskoy fiziki.
(Crotonic acid) (Chlorine) (Benzilic acid)

KUDRYAVTSEVA, T.A.; CHIRKOV, N.M.; KOCHETKOV, N.K.

Kinetics of the substitution reaction of chlorine atoms in some aryl-β-chlorovinyl ketones. Dokl. AN SSSR 148 no.2:347-349 Ja '63. (MIRA 16:2)

1. Institut khimicheskoy fiziki AN SSSR. Predstavleno akademikom V.N. Kondrat'yevym.
(Ketone) (Chlorine) (Substitution (Chemistry))

L 11977-65 EWT(m)/EPF(c)/EPR/EWP(j)/T Pc-4/Pr-4/Ps-4 RPL/ASD(m)-3 WW/RM

ACCESSION NR: AP4045438 S/0190/64/006/009/1717/1721

AUTHOR: Kudryavtseva, T. A.; Chirkov, N. M.

TITLE: Polymerization of tetrafluoroethylene at pressures below atmospheric

SOURCE: Vy*sokomolekulyarny*ye soyedineniya, v. 6, 1964, 1717-1721

TOPIC TAGS: tetrafluoroethylene, teflon, tetrafluoroethylene polymerization, polytetrafluoroethylene

ABSTRACT: A study has been made of the kinetics and mechanism of tetrafluoroethylene polymerization at monomer pressures in the range from 23 to 500 mm Hg. Polymerization was carried out in water solution with ammonium persulfate initiator. The effect of monomer pressure, temperature, initiator concentration, and pH on polymerization rate (W) was investigated. W was found to be a linear function of monomer pressure and to increase with temperature. The activation energy was about 15 kcal/mol. The fact that W was also proportional to the square root of the initiator concentration confirmed the free-

Card 1/2

L 8780-65
ACCESSION NR: AP4045438

radical initiation of the polymerization. The maximum W depending on acidity was in the 3.5—4.5 pH range. Orig. art. has: 6 figures, 2 tables, 5 formulas.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics, AN SSSR)

SUBMITTED: 080ct62 ATD PRESS: 3111 ENCL: 00

SUB CODE: MT, OC NO REF SOV: 001 OTHER: 022

Card 2/2

KUDRYAVTSEVA, T.A.; CHIRKOV, N.M.

Polymerization of tetrafluoroethylene at below atmospheric pressures. Vysokom.soed. 6 no.9:1717-1721 S '64. (MIRA 17:10)

1. Institut khimicheskoy fiziki AN SSSR.

KUDRYAVTSEVA, T.D.; PIROGOV, A.A.

Limits of reasonable increase of directional antenna dimensions. Nauch.dokl.vys.shkoly; radiotekh.i elektron. no.4:54-59 '58. (MIRA 12:6)

1. Moskovskiy gosudarstvennyy universitet i Vsesoyuznyy zaochnyy elektrotekhnicheskiy institut svyazi.
(Radio--Antennas)

KUDRYAVTSEVA, T.D.; TARTAKOVSKIY, R.D.

Effect of errors in the [illegible]nstruction of two-layered systems on their sound insulation properties. Akust. zhur. 11 no.1:62-67 '65. (MIRA 18:4)

1. Akusticheskiy institut AN SSSR, Moskva.

BELIKOV, G.P.; KUDRYAVTSEVA, T.G.; GUGNYAYEV, I.E.; BLEY, L.Ya.

Experience in using biomycin in malignant anthrax in man. Zhur. mikrobiol.epid. i immun. 27 no.4:106-122 Ap '56. (MLRA 9:7)

1.Iz Instituta farmakologii i eksperimental'noy khimioterapii AMN SSSR.

(ANTHRAX
malignant, biomycin ther.)
(ANTIBIOTICS , ther. use
biomycin in malignant anthrax)

KUDRYAVTSEVA, T.I. (Moskva)

Basic aspects in the study of diseases of the oral cavity and teeth in the Moscow population in 1958; based on data on requests for medical aid. Sov.zdrav. 20 no.5:58-62 '61. (MIRA 14:5)

1. Iz Nauchno-metodicheskogo byuro sanitarnoy statistiki (dir. - L.A.Brushlinskaya) Ministerstva zdravookhraneniya RSFSR i kafedry organizatsii zdravookhraneniya (zav. - dotsent G.N.Beletskiy) Moskovskogo stomatologicheskogo instituta.
(STOMATOLOGY--STATISTICS)

KUDRYAVTSEVA, T.I.

Study of the incidence of diseases of the mouth and teeth as revealed by data on patients' visits. Zdrav.Ros.Feder. 6 no.7:15-19 Jl '62. (MIRA 15:9)

1. Iz kafedry organizatsii zdravookhraneniya Moskovskogo meditsinskogo stomatologicheskogo instituta (rektor - dotsent G.N. Beletskiy) i Nauchno-metodicheskogo byuro sanitarnoy statistiki (dir. L.A.Brushlinskaya) Ministerstva zdravookhraneniya RSFSR.
(MOUTH--DISEASES) (TEETH--DISEASES)

KAYBICHEVA, M.N.; KUDRYAVTSEVA, T.N.; PETRIKEVICH, S.N.; ENTIN, V.O.

Testing of magnesite-chromite firebricks in the lining of a cyclone reactor for the preparation of activated carbon. Ogneupory 29 no.7:301-307 '64. (MIRA 18:1)

1. Vostochnyy institut ogneuporov (for Kaybicheva, Kudryavtseva).
2. Omskiy institut shinnoy promyshlennosti (for Petrikevich, Entin).

L 16593-66 EWT(m)/EWA(h)/EWP(e)/EWP(t) WH/JD

ACC NR: AR5009000 UR/0137/65/000/005/B015

AUTHOR: Semkina, N.V.; Permikina, N.M.; Kudryavtseva, T.N.

ORG: none

CITED SOURCE: Tr. Vost. In-ta Ogneporov, 1964, Nr 5, p49-69

TITLE: Jackets of immersion thermocouples made of thermal shock resistant corundum

SOURCE: Ref. zh. Metallurgiya, Abs. 2B101

TOPIC TAGS: thermocouple, ~~thermometer~~, corundum, titanium dioxide, furnace, metallurgic furnace, crystal structure, alumina, annealing, steel, slag

ABSTRACT: Results are cited of studies made of the density, structure and thermal shock-resistance of corundum jackets, used for measuring temperature by the immersion method for steel and slag in open-hearth furnaces. A study of various admixtures and the effects of thermal treatment have shown that the greatest thermal shock-resistance is found in prismatic crystal structures. Prismatic crystal texture may be achieved by either the addition of TiO_2 to the alumina, which sharply intensifies the caking process and lowers its temperature by 250°, or by using lower temperatures, not exceeding 1450°, in the annealing process. Orig. art. has: 8 figures, 6 tables, and 27 references. V. Reznik.

SUB CODE: 13,11/ SUBM DATE: 00

Card 1/1 mst

UDC: 669.183.536.53

SHUKSTAL', Ya.V., kand. ekonom. nauk; VERKHOVSKIY, I.A., kand. ekonom. nauk; FOMIN, V.M., kand. ekonom. nauk; MEZENEV, N.I., inzh.; DMITRIYEV, V.I., kand. ekonom. nauk; PADNYA, V.A., inzh.; Prinimali uchastiye: ZOTIKOVA, V.I., kand. ekonom. nauk; YELISEYEVA, T.V., inzh.; KUBLITSKAYA, V.Kh., inah.; KUDRYAVTSEVA, T.N., inzh.; MEZENEV, N.I., inzh.; TIKHONCHUK, M.K., inzh.; FEDOSOVA, V.N., tekhnik; DOBSHITS, M.L., red. izd-va; TIKHOMIROVA, S.G., tekhn. red.; LAUT, V.G., tekhn. red.

[Scope of the use of railroads and motorvehicles for short-distance freight haulage] Sfery primeneniia zheleznodorozhnogo i avtomobil'nogo transporta pri perevozke gruzov na korotkie rasstoianiia. Moskva, Izd-vo Akad. nauk SSSR, 1961. 197 p. (MIRA 15:2)

1. Akademiya nauk SSSR. Institut kompleksnykh transportnykh problem.

(Transportation, Automotive) (Railroads--Freight)

KUDRYAVTSOVA, T. P. TA 159T44

USSR/Medicine - Birds, Diseases Nov 49
Plague, Bird

"Pathologic Anatomy of Atypical Bird Plague,"
T. P. Kudryavtsova, Cand Vet Sci, All-Union Inst
of Experimental Vet Med, 2 pp

"Veterinariya" No 11

States pathological picture shows wide variation depending on strain of plague, various species of birds, their ages and physiological condition. Outlines different pathological effects on wide variety of membranes, muscles, and organs.

159T44

KUDRYAVTSEVA, T. P.

177T69

USSR/Medicine - Fowl Plague Sep 50
Diagnosis, Methods

"Pathomorphological Differentiation of Atypical and Classical Fowl Plague," T. P. Kudryavtseva, Cand Vet Sci, All-Union Inst of Expt Vet Med

"Veterinariya" No 8, pp 24, 25

Conducts comparative pathoanatomic examination of chickens experimentally infected with various strains of virus of atypical fowl plague taken from different sections of USSR and foreign countries and chickens experimentally infected with 3 different strains of

177T69

USSR/Medicine - Fowl Plague (Contd) Sep 50

virus of classical European fowl plague. Diseases the differences revealed by exam for the 2 diseases which can enable veterinarian in practice to perform differential diagnosis and take measures for control of the disease actually present.

177T69

1. KUDRYAVTSEVA, T. P.

2. USSR (600)

3. Hog Cholera

4. Pathologo-anatomical and histological changes in young pigs infected by bacterial causative organisms of hog cholera.
Trudy Vses. inst. eksp. vet. No. 1 - 1952.

9. Monthly List of Russian Acessions, Library of Congress, February, 1953. Unclassified

KUDRYAVTSEVA, T. P.

SHCHUREVSKIY, V. YE. and KUDRYAVTSEVA, T. P. The pathomorphological characteristic of virulent and immunogenic properties of the Br. suis 61 strain.

So: Proceedings of the All-Union Institute of Experimental Veterinary Medicine; Vol. XIX; No. 1. 1952

TABCON

BORISOVA, S.P., aspirant; KUDRYAVTSEVA, T.P., kand.veterin.nauk, nauchnyy rukovoditel' raboty

Differential pathomorphological diagnosis of leucosis in poultry. Veterinariia 41 no.3:41-43 Mr '65. (MIRA 18:4)

1. Vsesoyuznyy institut eksperimental'noy veterinarii.

KUDRYAVTSEVA, T.S.; SHEKHTER, M.Ye.; KARAVAYEV, N.M.; REYKHSHTADT, V.Ya., redaktor; SHPAK, Ye.I., tekhnicheskiy redaktor

[D.I.Mendeleev and the Russian coal industry] D.I.Mendeleev i ugol'naia promyshlennost' Rossii. Pod red. N.M.Karavaeva. Moskva, Ugletekhizdat, 1952. 85 p. (MLRA 7:10)

1. Chlen-korrespondent Akademii nauk SSSR (for Karavayev)
(Mendeleev, Dmitrii Ivanovich, 1834-1907)
(Coal mines and mining)

KUDRYAVTSEVA, T.S.; KOL'TSOV, A.V.

Two Lomonosov anniversaries. Vest. AN SSSR 31 no.11:77-80 N '61. (MIRA 14:11)
(Lomonosov, Mikhail Vasil'evich, 1711-1765)

KUDRYAVTSEVA, T.T.

"Influence of Thermal and Sanitray Conditions of Enviroment on the Bacterial Infestation of Meat and Its Products." Thesis for degree of Cand. Veterinary Sci. Sub. 23 Sep 49, Moscow Veterinary Academy.

Summary 82, 18 Dec 52, Dissertations Presented for Degrees in Science and Engineering in Moscow in 1949

KUDRYAVTSEVA, T.T.

Effect of certain chemotherapeutic preparations upon the length of retention of the dysentery bacillus in the body of mice. Zhur.mikrobiol.epid.i immun. no.4:79-80 Ap '54. (MLRA 7:5)

1. Iz Vsesoyuznogo khimiko-farmatsevticheskogo instituta im. Ordzhonikidze. (Dysentery) (Antibiotics)

All-Union Sci. Res. Chemico-Pharmaceutical Inst. imeni Sergo Ordzhonikidze, Moscow

KUDRYAVTSEVA, T. T.

USSR/Microbiology - Antibiosis and Symbiosis. Antobiotics. F-2

Abs Jour : Ref Zhur - Biologiya, No 7, 1957, 26304

Author : Belikov, G.P., Kudryavtseva, T.T., Antonova, A.A., Gugnyayev, I.E., Kazarina, E.N.

Inst :

Title : Resistance of Dysentery Bacillus to Syntomycin, Streptomycin, and Biomycin (An Attempt at Comparative Study of Dyenteric Strains Isolated in 1953 in MOscow and Kishinev).

Orig Pub : Zh. mikrobiol., epidemiol., i immunobiologii, 1956, 27 No 2, 35-41

Abst : Of the 800 strains of dyesentery bacillus isolated in dysentery patients, 15.3% were found to be resistant to syntomycin (I). Most of the resistant strains were obtained from patients treated with I. Strains resistant to biomycin (II) and streptomycin (III) were not found. A comparative study of the sensitivity of

Card 1/2 Inst. Pharmacology + Chemotherapy AMS USSR

Abs Jour : Ref Zhur - Biologiya, No 7, 1957, 26304

remaining strains of dysenteria microbes to the three antibiotics showed that they are most sensitive to I, less to II, and even less to III. The Flexner bacillus was found to be more sensitive than the Sonne bacillus.

USSR/Microbiology - Antibiosis and Symbiosis. Antibiotics. F-2

Abs Jour : Ref Zhur - Biol., No 12, 1958, 52804

Author : Belikov, G.P., Kudryavtseva, T.T., Antonova, A.A.
Inst : -
Title : The Problem of Cross Resistance of Dysentery Bacillus to Antibiotics.

Orig Pub : Zh. mikrobiol., epidemiol. i immunobiologii, 1957, 28 No 6, 116-122.

Abstract : 78 strains resistant to different doses of synthomycin (1.6, 6.25, 250 and 500 γ/ml), isolated from patients with Sonne and Flexner dysentery bacteria (39 cultures each) were selected. A study of their sensitivity to other anti-bacterial preparations-- bionycin, streptomycin, and sulfamides-- showed that strains resistant to syntomycin do not exert a cross-resistance to the agents enumerated above. In experiments on mice infected with a strain resistant to syntomycin, the latter exerted no

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Inst. Pharmacology & Experimental Chemotherapy AMS USSR

L 51405-65 EWT(1) IJP(c)

ACCESSION NR: AP5010698 UR/0181/65/007/004/0981/0984

AUTHOR: Belov, K. P.; Talalayeva, Ye. V.; Kudryavtseva, T. V.

TITLE: Thermomagnetic and galvanomagnetic effect in manganese ferrite

SOURCE: Fizika tverdogo tela, v. 7, no. 4, 1965, 981-984

TOPIC TAGS: ferrite, manganese ferrite, thermomagnetic effect, galvanomagnetic effect, magnetic ordering

ABSTRACT: A simultaneous investigation was made of the even thermomagnetic and [illegible] effects in the same sample of single-crystal [illegible] ferrite [illegible] tested, one containing [illegible]% excess of [illegible] [illegible] an excess of iron with composition $Mn_{0.87}Fe_{2.13}O_4$. The thermomagnetic effect was measured by a null method using a photocompensation [illegible] [illegible]-18. The galvanomagnetic effect was measured by a [illegible] method, and the magnetization by a ballistic method. The results showed that the thermomagnetic [illegible] galvanomagnetic effects have different behavior [illegible] [illegible] maximum growth in the region of weak fields (in displacement [illegible]

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L 51405-65
ACCESSION NR: AP5010698

tion processes), whereas the galvanomagnetic effect has the maximum growth in strong fields (in the region of the para-process). The difference is attributed [illegible] different mechanisms whereby the magnetic ordering (domain and spin) in the [illegible] acts on the thermoelectric power and on the electric conductivity. Orig. art. has: 4 figures.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University)

SUBMITTED: 22Jul64 ENCL: 00 SUB CODE: SS, EM

NR REF SOV: 009 OTHER: 000

Card 2/2

KUDRYAVTSEVA, T.V.

Air ionization in the emanatorium of the Belokurikha Health Resort. Vop.kur.,fizioter. i lech. fiz. kul't. 27 no.5: 441-445 S-O'62. (MIRA 16:9)

1. Iz kafedry fiziki Altayskogo meditsinskogo instituta i kafedry gigiyeny Moskovskogo meditsinskogo stomatologicheskogo instituta.
(BELOKURIKHA—AIR, IONIZED—THERAPEUTIC USE)

GOLDIN, A.S.; Prinimali uchastiye: KOLPENSKIY, G.P. [deceased]; CHERNYAYEVA, V.G., geolog; PROZOROVSKAYA, A.A.; KHOMUTOVSKAYA, A.K.; CHEBANOVA, O.; KUDRYAVTSEVA, V.

Use of the edaphic-geochemical method of oil and gas prospecting in southwestern Turkmenistan. Zhizn' Zem no.1:146-151 '61. (MIRA 15:6)
(Turkmenistan--Geochemical prospecting)

KUDRYAVTSEVA, V.A., dotsent

Effect of twisting and structure of No.15 viscose yarn on its physicomechanical properties. Tekst. prom. 24 no.5: 59-62 My '64 (MIRA 18:4)

1. Kafedra mekhanicheskoy tekhnologii voloknistykh materialov Moskovskogo tekstil'nogo instituta.

KALABINA, A.V.; BRYKINA, A.S.; TOMILOVA, L.V.; KUDRAYAVTSEVA, V.D.; MINAKOVA, T.T.

Synthesis and transformations of vinyl aryl ethers. Report No.13: Synthesis of α-phenyl vinyl ethers of phenol, o-cresol, and thymol. Izv. Fiz.-khim. nauch.-issl. inst Irk. un. 4 no.2:111-125 '59. (MIRA 16:8)

(Ethers) (Phenol condensation products)

KONTSEVOY, Yu.A.; KUDIN, V.D.; GERASIMOV, A.D.; ASVADUROVA, Ye.I.; TATARENKOV, A.I.; KUDRYAVTSEVA, V.F.

Apparatus for measuring the electrophysical properties of semiconducting materials. Zav.lab. 29 no.11:1397-1399 '63. (MIRA 16:12)

SOV/124-58-1-853

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 1, p 114 (USSR)

AUTHORS: Kachurin, L. G., Aleshina, G. I., Belyashova, M. A., Zalivina, V. I., Kudryavtseva, V. L., Nesterova, M. I., Serebryakova, A. A., Seryakova, L. P.

TITLE: Analysis of the Precipitation Zones of Stratiform Frontal Clouds (Analiz zon osadkov iz frontal'nykh oblakov sloistykh form)

PERIODICAL: Tr. Leningr. gidrometeorol. in-ta, 1956, Nr 5-6, pp 208-241

ABSTRACT: An investigation of the conditions of precipitation from As, Ns, and Sc type clouds of frontal origin. The first three sections are devoted to a description of the process of the conversion of cloud droplets into precipitation particles. The authors consider therein the problems of the condensational and coagulational growth of the droplets, the dissipation of cloud masses due to subsiding motions and the re-evaporation of the falling precipitation; also described are the conditions conducive to ice-crystal formation in clouds. The reasonings and graphs adduced in these sections are used further on in the analysis of the evolution of cloud masses and precipitation. The vertical motions are calculated according to the

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Analysis of the Precipitation Zones of Stratiform Frontal Clouds

method of N. I. Bureyev [Rukovodstvo po kratkosrochnym prognozam pogody (Short-range Forecasting Manual), Part I, Gidrometeoizdat, 1955] and, using a suitable graph, the authors determine the temperature level of intense ice-crystal formation for specific instances. The authors compare the location of the isotherm of intense ice-crystal formation with the location of the zone of cloud formation on vertical cross sections and arrive at the conclusion that the location of the boundaries of precipitation zones is much more accurately defined by the points of intersection between the upper boundary of a cloud formation and the line of intense ice-crystal formation than by the boundaries of the vertical currents. Utilizing the model of a specific synoptic situation the authors pose for themselves the task of clarifying the role of the ascending air currents in the process of changes in the precipitation zones. They analyze the effect of the vertical air currents on the location of the surface of intense ice-crystal formation and the altitude level of the upper cloud-mass boundary and arrive at a model of the evolution of the precipitation zones. Here they conclude that the vertical currents should be correlated not just with the fact of precipitation or nonprecipitation, but with the change in the dimensions of the precipitation zones. The last part of the paper is concerned with the confirmation of the proposed calculation scheme; it does so by means of a comparison of the actually obtaining precipitation zones

Analysis of the Precipitation Zones of Stratiform Frontal Clouds

with the calculated patterns. As pointed out by the authors, an analysis of 21 instances, during 1951 and 1952, has confirmed the existence of an immediate tie between the vertical currents within the boundaries of precipitation zones and the changes of their dimensions; here the degree of agreement between the boundaries of the calculated and the actually obtaining precipitation zones is determined to a significant degree by the reliability of the calculated horizontal air-mass transfer at the level of the upper cloud-mass boundary. The Appendix contains a description of the quantitative-prediction procedure for the precipitation zones of stratiform frontal clouds. Bibliography: 15 references.

K. G. Abramovich

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